

## ABSTRACT OF THE DISCLOSURE

Replication-competent adenovirus vectors specific for cells expressing carcinoembryonic antigen (CEA), and methods of use of such viruses are provided. These viruses comprise an adenoviral gene under control of a CEA transcriptional regulatory element (CEA-TRE). The gene can be, for example, a gene required for viral replication or the adenovirus death protein gene (ADP). The viruses can also comprise at least one other adenoviral gene under control of another transcriptional regulatory element specific to cells capable of which allow a CEA-TRE to function, such as a variant of a CEA-TRE. By providing for transcriptional initiating regulation dependent upon CEA expression, virus replication can be restricted to target cells which allow a CEA-TRE to function, such as cells expressing CEA, particularly carcinoma cells capable of expressing CEA. An adenovirus of the present invention can further comprise a heterologous gene such as a reporter gene under transcriptional control of a CEA-TRE. The adenovirus vectors can be used to detect and monitor samples for the presence of cells that allow a CEA-TRE to function, as well as to selectively kill malignant cells that allow a CEA-TRE to function.